

## Abstract

A metal halide lamp has an arc tube that includes:  
a pair of electrode structures, each of which has an  
5 electrode at a tip; a main tube part made of polycrystalline  
alumina ceramic, and containing a discharge space in which  
the electrodes of the electrode structures are located to  
oppose each other; and a pair of thin tube parts that  
connect from the main tube part and are sealed by respective  
10 sealing members with the electrode structures inserted  
therein, where  $20 \leq WL \leq 50$ ,  $EL/Di \geq 2.0$ , and  $0.5 \leq G \leq 5.0$  are  
satisfied where tube wall loading of the arc tube is  
 $WL(W/cm^2)$ , a distance between the electrodes is  $EL(mm)$ ,  
an inner diameter of the main tube part is  $Di(mm)$ , and a  
15 crystal grain diameter of the polycrystalline alumina  
ceramic is  $G(\mu m)$ .